

PROGRESS REPORT FROM TIC ON INNOVATION PROJECTS

Invitations to join the Australasian Transformer Innovation Centre at the University of Queensland are being progressively issued to Power industry companies across Australia. National organisations such as API and CIGRE and most transmission and distribution companies and some manufacturers would have received an invitation last month to join the centre. This centre will set the standard in transformer research and education within Australia.



The following nine companies have joined as Platinum members or are expected to join shortly. A further nine companies are currently considering Platinum members and another dozen have just been invited to join. Large discounts on Platinum membership are currently on offer for companies joining as Platinum members by 30th June 2017. Companies that have joined include: Wilson Transformers, API, CIGRE, ABB, Reinhausen, United Energy, TasNetworks, Powerlink, and SA Power Networks.

WEBSITE AND PROMOTION OF TIC

A website has been established at: <http://www.itee.uq.edu.au/TIC> and provides details of the centre including membership opportunities, entitlements and fees. TIC memory sticks are also available which include an interactive asset management tool and TIC information material on the Centre. The memory sticks and flyer were distributed to the hundreds of attendees at the recent CIGRE Transformer Tutorial and Techcon 2017 in Sydney but may be still available upon request and to new or intending members.

A template membership agreement has also been developed and is available for download on the TIC website and on request, membership agreements are being forwarded to prospective TIC members.

A direct personal email invitation was made in April to executives of 12 T&D companies listing the benefits of Platinum membership.

CPD COURSE DEVELOPMENT

Mr Kerry Williams says that the first industry driven CPD course to be run by the Centre will cover "the Whole Life Cycle Management of Power Transformers". It is planned to run this course over two days with both industry transformer experts and transformer researchers.



DAY 1:

Specifications:

- Process overview (referring standards/CIGRE guides)
- Minimum specification requirements
- What to look for in a factory audit & design review
- Specification for New and also 'brownfield' specification
- Mineral oil TX vs Natural ester TX Spec
- Do's and Don'ts - lessons learnt.

Factory and Site Testing:

- TF testing covering factory, acceptance, commissioning, and Field Testing
- A practical view relating each test to purpose, how it is done, pitfalls, interpretation of results etc. Also, cover traditional tests and emerging tests
- Case studies - Working through failures and analysis
- Tap-changers and Bushing - FAT, SAT & monitoring throughout their life
- Commissioning and testing requirements / trouble shooting
- Transformer Energisation and Performance.

Maintenance and Condition Monitoring (part 1):

- Maintenance & fault diagnostics
- Application of monitoring devices - on-line & off-line
- Site vs factory repairs
- Post mortem analysis of our failure and retired assets - what does it mean for other assets
- Case studies - Working through failures and analysis
- Monitoring from beginning of life of later / online condition monitoring - when to do it.

DAY 2:

Maintenance and Condition Monitoring (part 2):

- Turning data into information & data gathering - Various online monitoring, data mining and data analysis methods
- Health/risk assessment, Asset Health Index & Transformer Condition Assessments
- Dash boards & Fleet ranking
- Typical industry practice - moisture/bushing/etc - theory, installation, analysis, interpretation
- Condition monitoring method, what data collection is required from bushings, tap changer
- Online sensor types - Pro's and con's vs Offline monitoring techniques
- Latest technology and their intended uses/functions.

Live cross to TIC for real-time condition monitoring**

- Use of the TIC transformer in real time so that participants can get an on-line CM summary from a unit in service
- How to extract data in real time & What does the data mean
- Alarms & urgency of response.

Whole of Life Costing:

- Condition & Risk based maintenance & Risk mitigation techniques (end of life)
- Total cost of ownership calculations, Whole of life cost assessment models
- Mid-life refurbishment - technical & financial
- Remaining of life calculations, Remaining Life Estimation
- Maintenance - cost, risk, and reliability
- Estimating end of life, End of life assessment - methodology, physical inspection, cost, determination.

Course Review



**The live cross to the TIC transformer can be via actual site visit depending on time available or by remote access using the video and internet access. This is vital in being able to bring together the course content and the use of the transformer.

Course development is scheduled for the next few months so that course delivery can commence in September to December 2017.

ADVISORY STEERING COMMITTEE

A TIC Advisory Steering Committee has been established and is an Industry led Committee with representatives from senior power industry executives from each state and each sector of the power Industry. The Committee provides the Governance for the establishment and ongoing operation of the centre.

Details of the terms of reference for the Committee and its decisions can be found on the TIC Website at <http://www.itee.uq.edu.au/TIC>

Email Enquiries to: transformer@itee.uq.edu.au

